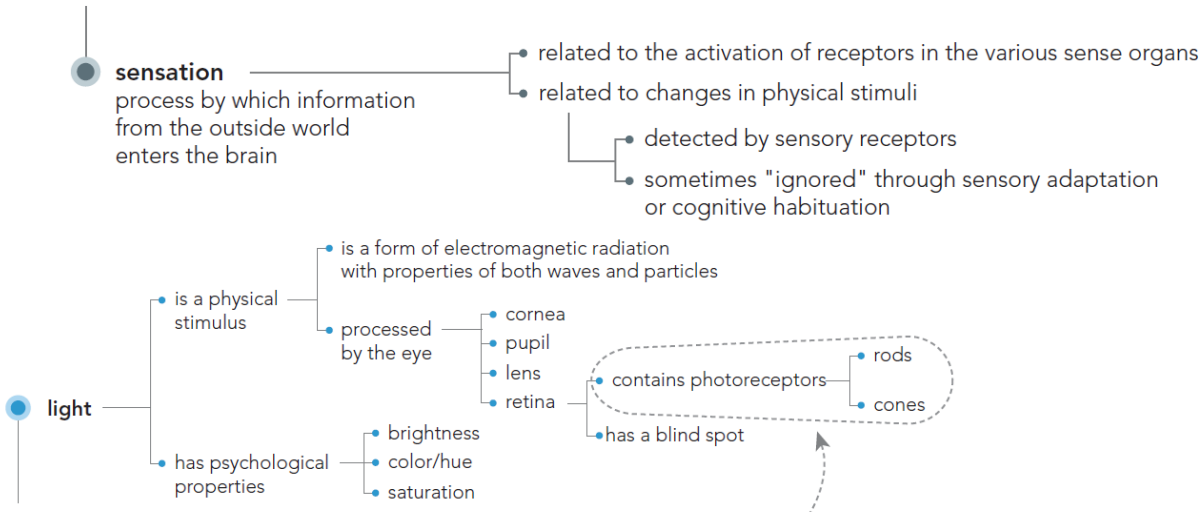
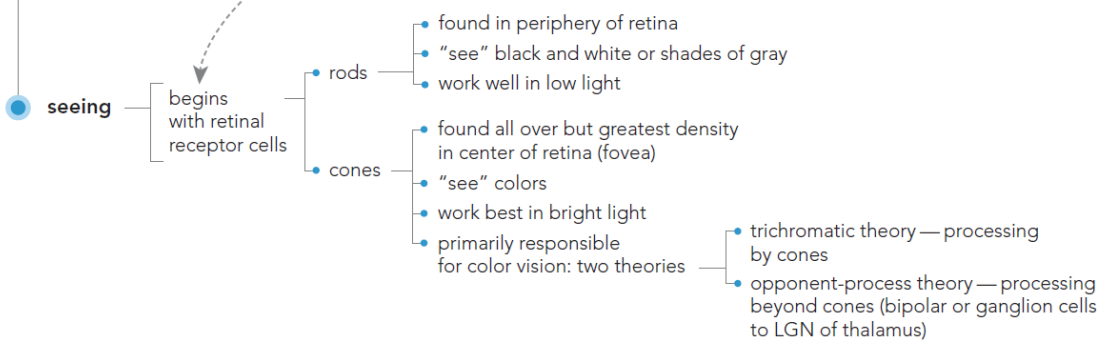
Sensation and Perception

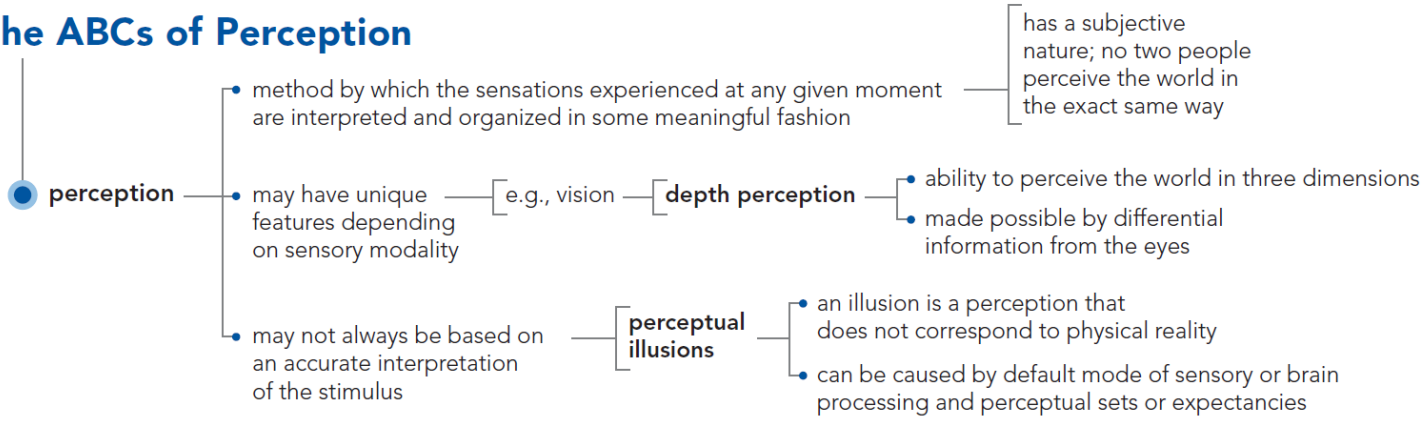
The ABCs of Sensation



The Science of Seeing

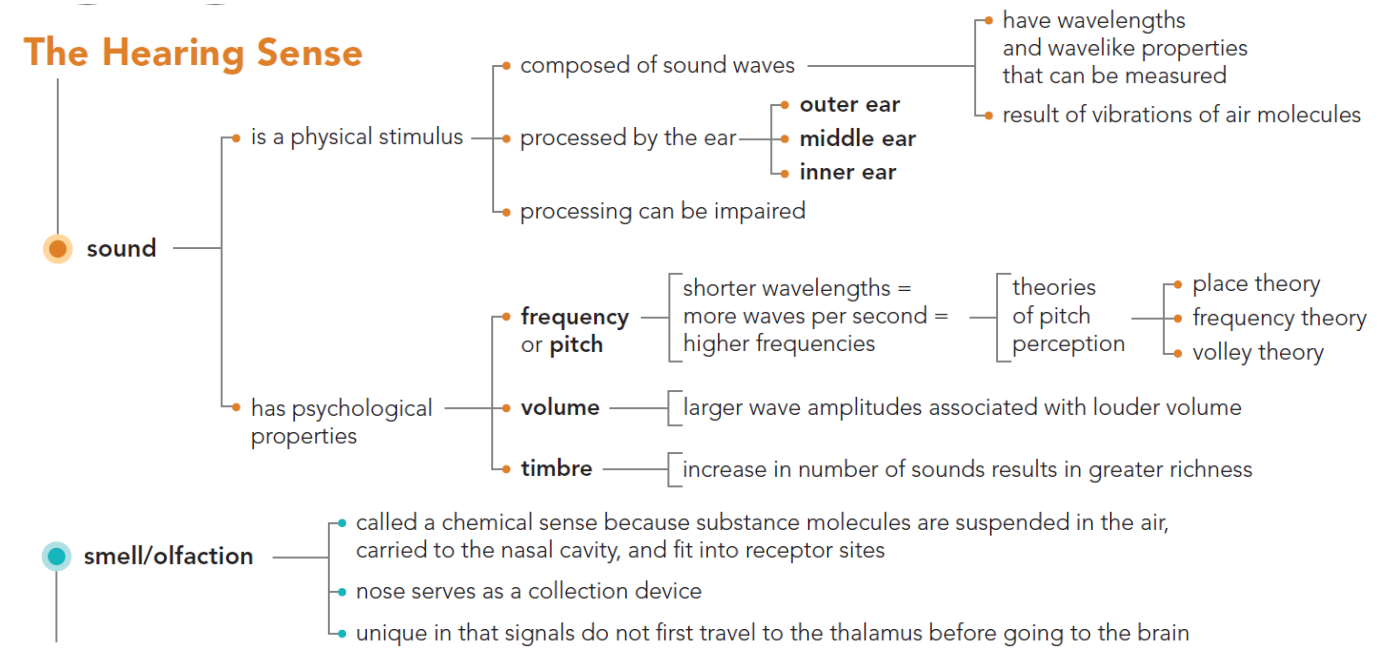

seeing
begins with retinal receptor cells
rods
found in periphery of retina
"see" black and white or shades of gray
work well in low light
cones
found all over but greatest density in center of retina (fovea)
"see" colors
work best in bright light
primarily responsible for color vision: two theories
trichromatic theory — processing by cones
opponent-process theory — processing beyond cones (bipolar or ganglion cells to LGN of thalamus)

The ABCs of Perception


perception
method by which the sensations experienced at any given moment are interpreted and organized in some meaningful fashion
has a subjective nature; no two people perceive the world in the exact same way
may have unique features depending on sensory modality
e.g., vision
depth perception
ability to perceive the world in three dimensions
made possible by differential information from the eyes
may not always be based on an accurate interpretation of the stimulus
perceptual illusions
an illusion is a perception that does not correspond to physical reality
can be caused by default mode of sensory or brain processing and perceptual sets or expectancies

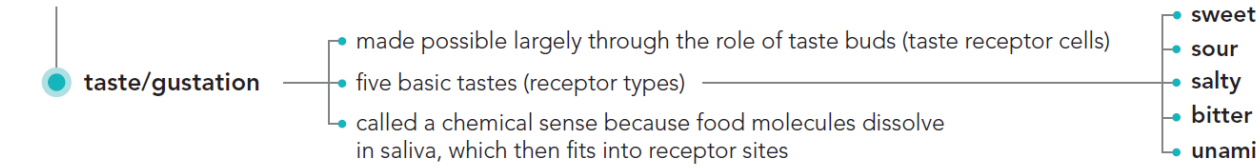
SHOUT
SHARE
IT

Sensation and Perception

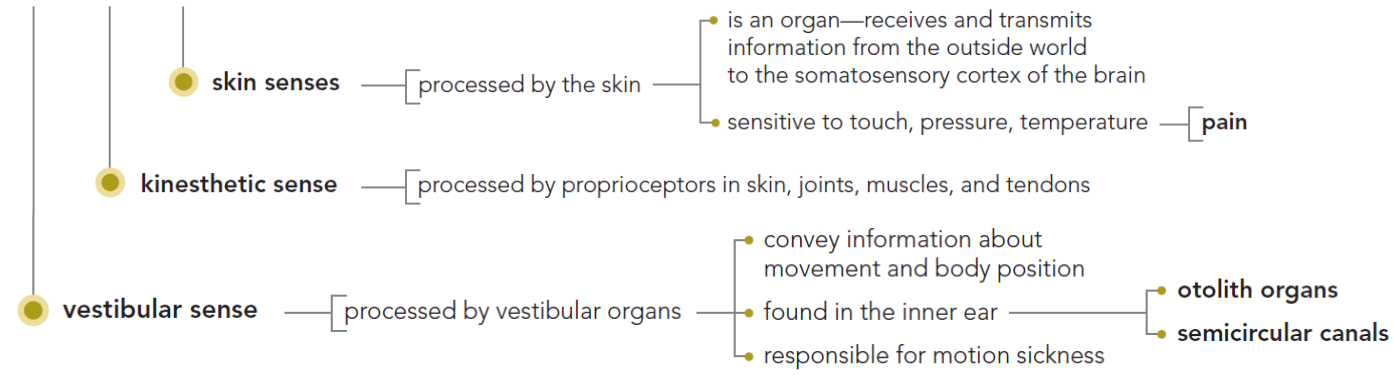


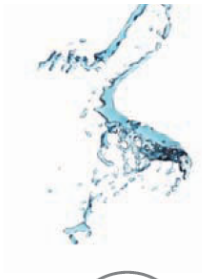
smell/olfaction
called a chemical sense because substance molecules are suspended in the air, carried to the nasal cavity, and fit into receptor sites
nose serves as a collection device
unique in that signals do not first travel to the thalamus before going to the brain

Chemical Senses


taste/gustation
made possible largely through the role of taste buds (taste receptor cells)
five basic tastes (receptor types)
sweet
sour
salty
bitter
unami
called a chemical sense because food molecules dissolve in saliva, which then fits into receptor sites

Somesthetic Senses


skin senses
processed by the skin
is an organ—receives and transmits information from the outside world to the somatosensory cortex of the brain
sensitive to touch, pressure, temperature
pain
kinesthetic sense
processed by proprioceptors in skin, joints, muscles, and tendons
vestibular sense
processed by vestibular organs
convey information about movement and body position
found in the inner ear
otolith organs
semicircular canals
responsible for motion sickness



3 sensation and perception

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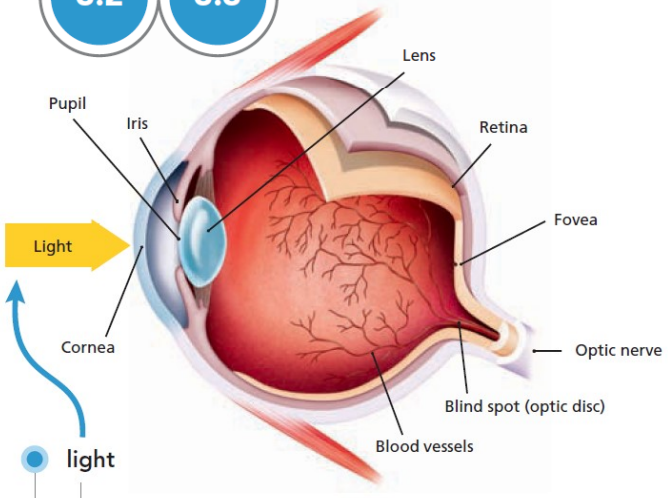
The ABCs of Sensation

- **sensation** — process by which information from the outside world enters the brain
  - related to the activation of receptors in the various sense organs
  - related to changes in physical stimuli

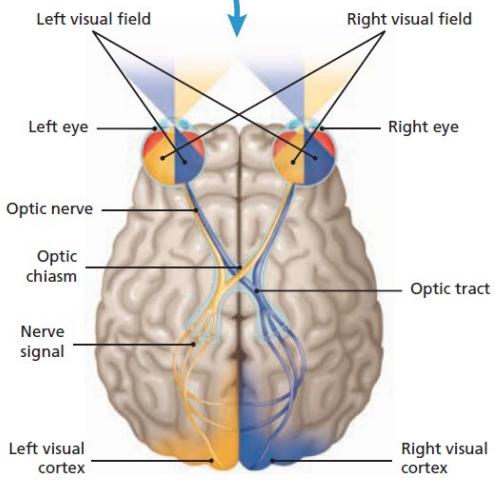
3.2 3.3 p. 100



- **light**
  - is a physical stimulus
    - is a form of electromagnetic radiation
    - processed by the eye
  - has psychological properties
    - brightness
    - color/hue
    - saturation

The Science of Seeing

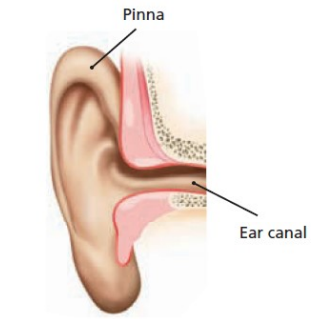
- **seeing** — begins with retinal receptor cells
  - rods
  - cones



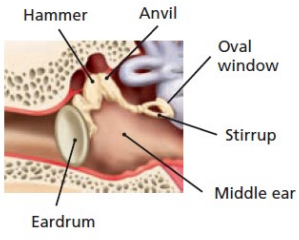
3.4 3.5 p. 104

- **sound**
  - is a physical stimulus
    - composed of sound waves
    - processed by the ear
    - processing can be impaired
  - has psychological properties
    - **frequency** or **pitch**
    - **volume**
    - **timbre**

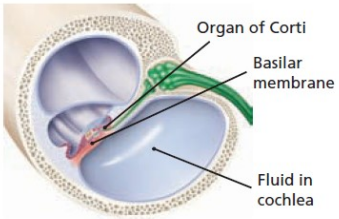
The Hearing Sense



- **outer ear**



- **middle ear**



- **inner ear**

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Chemical Senses

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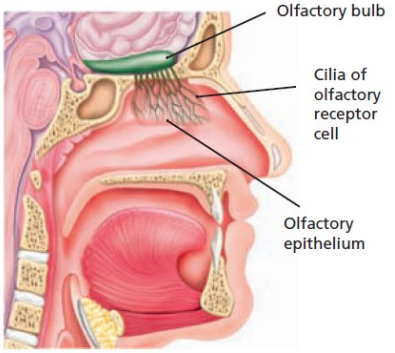
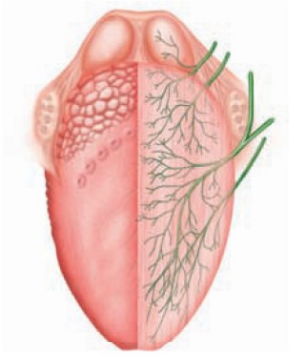
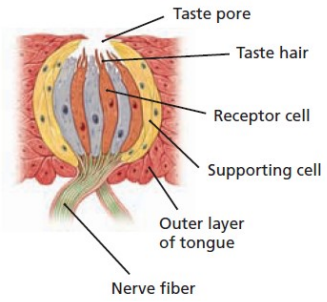






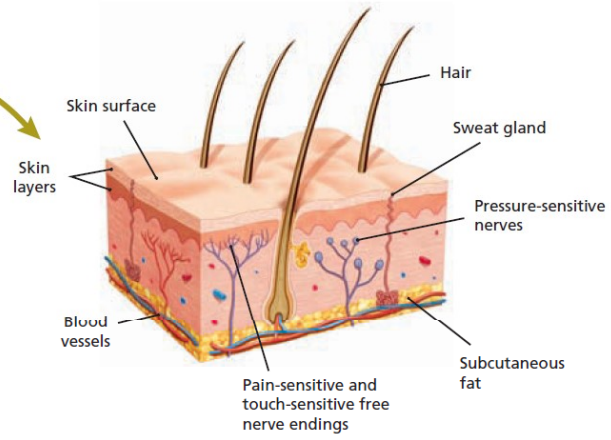
taste/gustation

- made possible largely through the role of taste buds (taste receptor cells)
- five basic tastes (receptor types)
- called a chemical sense because food molecules dissolve in saliva, which then fits into receptor sites

3.7 p. 111

Somesthetic Senses

skin senses — processed by the skin



kinesthetic sense — processed by proprioceptors in skin, joints, muscles, and tendons

vestibular sense — processed by vestibular organs

3.8 3.9 3.10 3.11 p. 121

The ABCs of Perception

perception

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- may have unique features depending on sensory modality
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